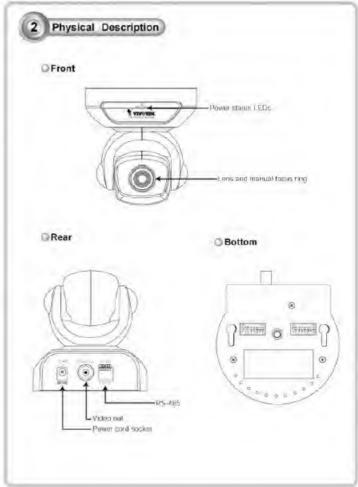


Pan/Tilt CCD Camera

PT1111M/ PT1121M/ PT1111H/ PT1121H

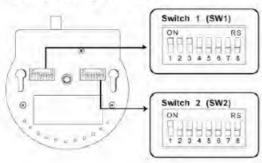
USER'S MANUAL







Default Settings of Switches



Switch 1 (SW1)

DIP Switch	Setting
1.1	Power Status LEDs On/Off
1-2	BLC (Back Light Compensation) On/Off
1-3	IR Receiver for Remote Control On/Off
1-4 & 1-5	Baud Rate Select **
1-6 & 1-7	Pan/Tilt Control Protocol Select ***
1-8	Termination Setting ****

BLC On/Off

BLC is "disabled" under default setting. To enable the BLC, set the DIP switch (SW1-2) to "Off" position.

** Baud Rate Select

DIP Switch	SW1-4	SW1-5
2400 Baud (default)	Off	Off
4800 Baud	On	Off
9600 Baud	Off	On
19200 Baud	On	Оп

*** Pan/Tilt Control Protocol Select

DIP Switch	5W1-6	SW1-7
Pelco D Protocol	Off	Off
Reserved 1	On	Off
Reserved 2	Off	On
Reserved 3	On	On

*** Termination Setting

Terminate the unit farthest from the controller when connecting more than one pan/tilt camera to a single controller. Termination is only required for the last camera in the series.

The default setting of the camera is unterminated (SW1-8 at "Off" position). To terminate the camera, set the DIP switch (SW1-8) to "On" position.

Switch 2 (SW2)

The DIP switches (SW2-1 – SW2-8) here configure the camera's receiver address. Maximum number of receiver is 254. Refer to Table A for address settings while using Pelco D-Type control protocol.



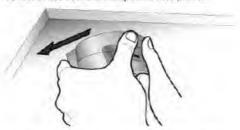
1) Attach the mounting kit to the mounting surface.



Align the slots located on the bottom of the camera with the screws on the sides of the ceiling mount kit.



3) Install the camera and push it into place.



 Firmly hold the camera while plugging in the power cord and video cable.



5 Pelco D Protocol Command

The format for a message is:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synch Byte	Address	Command 1	Command 2	Data 1	Data 2	Check Sum

All values below are shown in hexadecimal (base 16). The synchronization byte is always \$FF.

The address is the logical address of the receiver/driver being controlled (Address-00 is broadcast to every device).

The check sum is the 8 bit (modulo 256) sum of the payload bytes (bytes 2 through 6) in the message.

O Command 1 and 2 are as follows:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit O
Command 1	Reserved(0)	Reserved(0)	Reserved(0)	Reserved(0)	Reserved(0)	Reserved(0)	Réserved(0)	Reserved(0)
Command 2	Reserved(0)	Reserved(0)	Reserved(0)	Down	Up	Left	Right	Always 0

The reserved bits (Command 1: Bit7~Bit0; Command 2: Bit7~Bit5) should be set to 0.

Byte 5 contains the pan speed(2°/sec~65'/sec). Pan speed is in the range \$00 (stop) to \$3F (high speed) and \$FF for "turbo" speed. Turbo speed is the maximum speed the device can obtain and is considered separately because it is not generally a smooth step from high speed to turbo. That is, going from one speed to the next usually looks smooth and will provide for smooth motion with the exception of going into and out of turbo speed.

Byte 6 contains the tilt speed(6"/sec-30"/sec). Tilt speed is in the range \$00 (stop) to \$3F (high speed) and \$FF for "turbo" speed.

Byte 7 is the check sum. The check sum is the sum of bytes (excluding the synchronization byte) modulo 256.

Extended Commands.

Home: Command 2(Bit4~Bit1 are set to 1).

	Bit 7	Bit 6	Bit 5	Bit 4	Bt 3	Bit 2	Bit 1	Bit 0
Command 2	Reserved(0)	Reserved(0)	Reserved(0)	Down 1	Up 1	Left 1	Right 1	Always 0

Auto Pan: Command 2(Bit2~Bit1 are set to 1)

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Command 2	Reserved(0)	Reserved(0)	Reserved(0)	Down 0	Up 0	Left 1	Right 1	Always 0

Auto Pan speed is controlled by byte5(Data 1), byte5=1(2°/sec),2(4°/sec),3(6°/sec)

© Example Messages :(all message values are in hexadecimal)

Message to send	Message
Receiver 1. Down turbo speed	FF, 01, 00, 10, 00, FF, 10
Receiver 1. Up high speed	FF, 01, 00, 08, 00, 3F, 48
Broadcast, Left turbo speed	FF, 00, 00, 04, FF, 00, 03
Receiver 2. Left slowest speed(2*/sec)	FF, 02, 00, 04, 01, 00, 07
Receiver 10, Hame	FF, 0A, 00, 1E, 00, 00, 28
Receiver 254, Auto Pan (6°/sec)	FF, FE, 00, 06, 03, 00, 07
Receiver 254, Stop	FF, FE, 00, 00, 00, 00, FE
Broadcast, Stop	FF, 00, 00, 00, 00, 00, 00
Receiver 10, Right turbo speed	FF. 0A. 00, 02, FF. 00, 0B

Note: the check sum calculation for the last message looks like this:

00001011 0B Final check sum value

DA	00001010
00	00000000
Subtotal	A0 01010000
02	00000010
Subtotal	00001100 00
FF	11111111
Subtotal	00001011 08
00	00000000

6

Technical Specifications

Model	PT1111M/PT1121M	PT1111H/PT1121H				
Image sensor	1/3* Color CCD	1/3" High resolution Color CCD				
Picture Elements	NTSC: 512*492/ PAL: 512*582	NTSC: 7711492/ PAL: 7531582				
Horizontal Resolution	380 TV Lines	480 TV Lines				
H. Sync Frequency	NTSC: 15 734 KHz, PAL: 15.625	(Hz				
V. Sync Frequency	NTSC: 59.94 KHz, PAL: 50 KHz					
Synchronization	Internal					
Minimum Illumination	1.0 Lux at F2.0	0,5 Lux at F 2.0				
Back Light Compensation	ON/OFF switch					
Electronic Shutter	AUTO, Range: 1/50(1/60) - 1/100	,000 sec.				
Auto Gain Control	AUTO					
Flickerless	ON/OFF switch (Optional)					
Video Output	1 Vp-p, 75 Ohms					
Lens	Standard: 6mm/F1 8 Option: 3.6, 8, 12 mm/F2.0					
Pan Angle	-135° +135°					
Pan Speed	2°- 65°/sec.					
Tilt Angle	-90°- +45°					
Tilt Speed	6°-30°/sec					
Control Interface	RS-485					
Address Setting	1-254					
Dimensions	115mm(L)*105mm(W)*110mm(H)					
Weight	Net. 390g.					
Power	12V DC					
EMI & Safety	CE, FCC					

CAMERA				TCH SE				
ADDRESS	SW2-1	_	_		SW2 E	_	_	
2	CIT	OFF	OFF	OFF	OFF	OFF	OFF	OFF.
3	ON	DN	OFF	OPF	910	OFF	OPT	brt
4	281	Dey	DN	CRY	DH	Ore	Cer	OH
5	CN	-(364-	ON	CEL	OH	OFF	7.84	DEL
- R - 7	CFF	DAI	DN	OFF	OFF	OFF	OFF	OFF
8	ON	DAY DAF	DHF	OFF	OFF	OFF	OFF	OFF
9	ON	DEF	OFF	CIN	OFF	OFF	OFF	DEF
10	CFE	DNI	OFF	ON	CFF	OFF	OFF	OFF
11	ON	DN	OFF	ON	OFF	OFF	OFF	OFT
12	OFF	OFF	ON	CN	OFF	OFF	OFF	OFF
13	DN	DFF	ON	ON	OFF	OFF	OFF	DF4
16:	ON	DN	DN	CIN	OFF	910	CIFT	OFF
16	CFF	DAL	OFF	OFF	ON	110	CAT	07
17	ON	OFF	OPP	OFF	DN	OFF	Ope	37
18	(91	DN	0++	CRT	ON	440	Cer	OFF
20	-CN-	DATE	OFF	CEE	DN	OFF	CEC	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	CAF	DN	08	OFF	ON	OFF	OFF	OFF
23	CN	13/4	ON	OFF	ON	OFF	OFF	DEE
24	35	BEL	OFF	dN	-014	-OFF	CET	OF1
25	ON	DFF	OFF	CN	DN	OFF	OFF	OFF
26	ON	DN	OFF	ON	DN DN	OFF	CRE	OFF
26	CAF	OFF	ON	ON	-DN	OFF	CEE	OFF
. 20	DN	DFF	ON	CN	-DN	OFF	OFF	OFT
30	OFF	DN	ON	CN	ON	OFE	OFF	OH
31	ON	-04	MO	ON	314	OFF	OFF	CER
32	GI	DEF	Utt	OFF	944	310	CET	007
33	ON	DFF	OFF	OFF	OFF	ON	CEF	OFF
35	OFF	DN	OFF	OFF	OFF	ON	OFF	OFF
35	OFT	DEE	ON	OFF	OFF	ON	OFF	OFF
37	ON	DEF	ON	OFF	DFF	ON	OFF	OFF
34	CET	544	ON	OFF	DIT	ON	CIT	DIT
.39	üN	DN	WC	OFF	JH	ON	CFF	07
40	CEF	DEF	OFF	CN	DEF	ON	(ME)	DEF
42	ON	DFF	OFF	ON	DFF	ON	OFF	OFF
45	ON	DN DN	OFF	ON.	OFF	ON	OFF	OFF
44	385	DEF	ON	194	OFF	ON	ME	DEF
45	ON	DFF	ON	ON	DFF	ON	OFF	OFF
4.6	OFT	004	DN	ON	DIV	ON	GET	CP7
47	ON	DN	ON	CIN	OFF	ON	OFF	OFF
48	CN	DEF	OFF	OFF	DN	ON	OFF	OFF
50	257	DN	OFF	OFF	OH	084	OFF	OFF
51	-CN	DN	OFF	OFF	DN	ON	OFF	OFF.
52	OF	DIFF	ON	CET	-OM	ON	Om	OFF
53	CN	CHE	ON	OFF	ON	ON	OFF	CFT
55	CFF	-014	NO	OFF	-084	-ON	CEE	DEF
56	ON	DH	OFF	OFF	DN	ON	OFF	OFF
51	ON	OFF	OFF	CIN	ON	ON	OFF	OH
58	CEP	TWI	OFF	CH	011	ON	CFF	OFF
59	CN	044	DIFF	ON	DN	ON	OFF	ork
60	SPT	017	ON	SIN	ON	ON	OFF	OFF
63	ON	DN	CIN	CN	DN	ON	OFF	DH.
63	CN	DN	ON	ON	1014	ON	OE:	OFF
64	97	DOT	710	OFF	DEF	ore	CIN	CET
65	ON	D#7	OFF	OFF	OFF	OFF	CN	DPF
0.0	260	DN)	CHE	OFF	DFF	OFF	ON	DEF
65	CN	DN	OFF	OFF	OFF	OFF	CN	OFF
69	OFF	DFF	-DN	OFF	DFT	-510	CIN	OFF
70	CFF	CAN	ON	OFF	OFF	OFF	ON	DEF
71	EN	DN	DN	OFF	OFF	OLE	DN.	OFF
7.2	OFF	DIF	OFF	OH	OFF	OFF	ON	OFF
73	CN	OPF.	orr	ON	-DFF	orr	CN	0.4
74	CN	DN4	OFF	CIN	200	OFF	ON	DIE
76	CHE	DEF	OH	ON	OFF	OFF.	ON	OFF
77	ON	OFF	ON	CN	OFF	OFF	ON	OFF
76	134	CKN	on	ON	088	ôte	ON	OFF
79	CN	ON	CIN	CIN	-064	OFF	ON	OFF
80	OFT	CVV	OIT	OFF	-014	OFF	ON	OFF
81	CN	DFF	OFF	OFF.	ON	OFF	ON	OFT
82	SN SN	DN DN	OFF	OFF	OH	OFF	ON	OFF
.00	7014	100	Total Control	-	200	Ore	1000	-

CAMERA ADDRESS	\$102-1	5W2-2	5W/2-3	SW2-4		SW2-6	SW2-7	SW2-8
86	7397	CFF	DV.	DFF	DN	DFE	1394	DFF
89	OFF	Chi	ON	OFF	CH	OFF	CHI	QFF
87	ON	Cer-	DN	170	DN DN	DFF	ON	QPF GPn
89	ON	CEF.	DEL	ON	CN	DEF	04	OFF
503	OFF	DN	DEF	7001	ON	DFF	084	OFF
92	ON	ON	OFF	ON	ON.	DFF	ON	OFF
93	ON	OFF	DN	ON	ON.	DEF	ON	OFF
94	OFF	Ok	ON	XXV	CN	OFF	04	OFE
96	ON	CN	ON	ON	On	DFF	ON	OFF
96 97	Off	CFF	DEF	OFF	DFF	DN	DN	CFF
98	OFE	TA	DES	OFF	OFF	ON	04	CEF
00	20%	DN	OFF	OFF	CFF	DN	(3/4	OFF
101	ON	CPF	ON	OFF	OFF	DN	ON	OFF
102	OFF	DN.	CPA	OFF	044	CPA	ON	01-6
163	ON	ON	ON	Oke	OLE	DN	014	CFF
105	OFF	DT	DFF	OH	OFF	DN	.09	OFF
106	DIFF	CFF.	DEF	ON	OFF	DN	ON	OFF
107	ON	CN	DEE	ON	OFF	DN-	.014	CFF
108	OFF	CFF	CHA	ON	CAE	ON	001	OFT
100	OFE	OFF	ON	ON	OFF.	DN DN	ON	CITI
-117	TON.	DN.	DN.	Off	DFF	ON	13/4	OFF
112	OFF	CFE	OFF	OFF	CN	ON	014	CFF.
113	ON	DFF	OFF	DFF	ON	DN	-04	OFF
115	ONE	CA	OFF	OFF	ON	DN	GW GW	OFF
156	210	ne	Dis	04	Dec	DAT	DN	Chr
117	ON	CFT	ON	OFF	ON	DN	014	OFF
118	ON.	CA	ON	OFF	DN.	DN	CN	OFF
120	DEF	DEF	DEF	DH	DN	DN	DW	OFF
121	ON.	CFT	OFF	ON	ON	ON	OH	OFF
182	277	CAC	ar	011	DN	139	300	are
123	On-	CN	ON	001	ON	ON	CW4	CHE
125	ON	Ort	ON.	ON	ON-	. DM:	DN	GFF
128	OFF	CAY	ON	ON	ON	DN	0/4	der
127	OFF	CR	OFF	OFF	OFF	DN DFF	ON	ON
129	.060	OFF	DEF	OFF	OFF	DEF	OFF	ÖN
190	Off	EN.	DEE	OFF	DITH	DIT	OFF	ON
131	ON	DPF	DIV	OFF	DFF	DH	OFF DFF	ON
133	ON	CFF	ON	OFF	OFF	DEF	OFF	CN
(34	OFF	EN	ON	OFF	DIFF	DFF	DAL	200
135	ON.	CN.	DN.	OFF	OFF	OFF.	OFF.	ON
137	OFF	OFF	DEE	ON	OFF	DEF	OFF	ON-
138	OFF	CAL	OFF	ON	OFF	CEF	OFF	CN.
130	XXV.	OV.	DEF	DN-	DFF	DFF	OFF	ON
141	OFF	CFF	DN.	ON	OFF	OFF	OFF	GN GN
142	OFF	CN	OV	OH	OFF	OFF	OFF	CN
1/43	ON	ON	DN	ON	OFF	DIT	OFF	QN
140	OFF	CPT	000	OFF	ON	070	OFF	DN
146	DHF	EN	134	DHF	Des	1364	DEF	DN
147	ON	Chr	Det	OFF	ON	DEF	OFF	CN
149	ON.	OFF.	DN.	OFF	ON	DEF.	DEF	ON
100	DIFF	CN.	DV	UFF	ON	DFF	OFF	ON
151	VON-	ON	ON	OFF	DN	OFF	OFF	ON
162	OFF ON	OFF	DEL	ON	ON	DFF	DIT	ON
154	OFF	CH.	DEE	ON	CN	TIFE.	UEF.	CN
155	7361	CNI	DIFF	239	DN	DFF	OFF	EN
166	OFF	CEF	DN	ON	ON	OFF	OFF	ON
167	ON	DIV.	DN DN	DNI DNI	ON	DPE.	OFF	ON DN
169	ON	CN	DN	1001	ON	DEL	OFF	CN
160	XXF.	OFF	DFF	OFF	Det	04	1961	Oh_
161	ON	CFF	DFF	OFF	OFF	ON	OFF	ON
163	ON	EN.	DEF	OFF	OFF	DN	OFF	ON
164	WIT	DEE	(30)	OFF	DEE	DN	OFF	ON
165	OW	OFF	OV.	OFF	OFF.	DN .	OFF	ON
166	ON.	EN	ON.	DFF	OFF	DN	DFF	ON ON
166	OFF	/IE	DEE	OH	OFF	1304	OFF	ZN

CAMERA			SMIT	CH SE	TTING			
ADDRESS	SW2-1	SN2-2	SW2-3	SW2-	SWZ-6	SW2-6	SWZ-T	SWZ-
100	DN	DIL	Det	QN	OFF	Ori	OFF	DN
1/0	CHA	ON	OFF	CN.	OFF	ON	CFE	DN
172	DEK	DIT	Sin	Ch	DEF	ON	DFF	DRI
173	ON	OFF	1011	ON.	OFF	QN	OFF	ON
174	DFF	Ditt	Diffs	I.B.	OFF	Dire	DFF	D14
175	DN	OFF	CFF	CIT	OFF	ON	DEL	DN
177	DN	OFF	SFE	OFF	04	ON.	OFF	DN
178	OFF	-014	CFF	CFF	06	Ott	OFF	DN
179	DN4 DAF	OFF	OFF	CFF	04	OH	CFF	DN
181	DN	OFF	DN-	DFF	04	ON	DFF	DN
152	00	00	Ch	CFF	011	Ohi	400	ON
185	CN	OFF	CA	CHF	ON	DNI DNI	CHE	DN
195	DN	OFF	OFF	ON	ON	011	DFF	ON
199	DIT	DW	DIT	EN I	309	DH	DIT	Des
167	DN	DEF	OFF	EN	DN DN	CIN .	CEF	DN
189	DN	OFF	DN	CN	04	ON	DEE	DN
190	orr	ON	- 001	CR	2019	DN	CM	DN
191	DN	OW	DA	CN	10/4	On-	OFF	DN
192	DN	OFF	DEE	CEE	OFF	OFF	DN DN	DN
104	DEF	ON	OFF	OFF	OFF	OFF	CN	ON
195	DN	ON	OFF	CFF	OFF	OFF	DN.	DN
195	DEF	DFF	ON CRI	OFF	OFF	OFF	DN ON	DN
198	orn	ON	CH	DEF	DEF	190	CAL	DN
199	ON	ON	ON	CFT	OFF	OFF	ON	ON
200	04	DFF	CFE	DN.	OFF	DEF	DN.	DN4
2077	OFF	DN	OFF	DN	OFF	DEF	DN	1004
203	2014	-ON	OFF	ON.	OFF.	OFF.	DN.	ON
204	CIN	DEF	-00	CN.	OFF	OFF.	DN.	CN
208	DEF	004	ON.	ON	OFF	OFF	ON	130
207	DN	OFF	ION-	CN.	OFF	DFF	DN:	DN
208	DIFF	OFF	OFF	CFF	ON	OFF	ON	DN
210	DEF	ON	CFF	OFF	OH	OFF	ON	7/4
211	DN	DH	OFF	CIT	ON ON	OFF	ON DN	DN
213	UN	OFF	-00	DFT	OW	OFF	DN	DN
213	CHE	OW	En	OFF	09	(11-)-	CN	DW
216	DFT	DIT	QN EFF	OFF	04	OFF	ON.	DN4
217	DN	-GFF	OFF	EN.	04	OFF	ON.	ON
218	DFF.	ON	UFF	CR	.00	OFF	CN	DN
219	OFF	OFF	OFF	Ch.	04	OFF	ON ON	DN
221	DN	OFF	26	CN	DN.	OFF	DN	DN
222	GFF	ON	City	DN	QN	OFF	CN	DH
223	DATE	OFF	OFF	OFF	OFF	OFF	CN	DN DH
225	DN	OFF	OFF	OFF	OFF	ON	DN	DN
225	CHF	ON	Tipe.	CF	OFF	100	CN.	DN
227	DAE	OFF	DE	CFF	OFF	ON	CN	DN
229	DN	OFF	ION	OFF	OFF	Off	ON	DN
230	DIT	ON	06	DFF	OFF	OF	DN.	DN
231	CN	OFF	CA-	CFF	OFF	ON	DN.	DN
233.	ON	OFF	OFF.	Ch.	OFF	ron_	.CN	201
234	Der	ON	QFF	CN.	OFF	ON	ON	DH
235 236	DN	DN	CR	EN	OFF	ON	DN:	DN
237	DN	DFF	IÓN.	ON	DFF	DN	DN	DN
238	OFF	ON	CH	CN	110	OH	ON	DN
239	DN	ON	DEF	CN	OFF	ON	DN	DN
241	DIFF	OFF	OFE	CFE	04	ON.	CN	DN
242	CEF	ON	DFF	CFF	99	1903	ON	DN
243	DEF	DFF	OFF	OFF	ON	ON	ON	DN
245	17/14	OFF	06	OFF	ON	ON	DN.	DN
244	DET	OH	100	CFF	10/4	ON	CN	DN
247 245	ON ON	011	ON	ON.	ON	Oti	ON	DN DN
249	064	OFF	DEF	CN	CN	ON	ON	DN
250	OFF	-ON	OFF	ON	04	ON	UN	04
251	DN4 GFE	OFF	OFF	Ch	ON	ON ON	ON	ON.
253	DN-	DFF	DN	CN	ON.	CM1	ON.	DN4
254	GEE	-ON	.06	Cty	.014	ON	CN	201

Electromagnetic Compatibility (EMC)

This device compiles with FCC Rules Part 15. Operation is subject to the following two conditions.

- *This device may not cause harmful interference, and
- *This device must accept any interference received, including interference that may cause undesired operation.

